THE FIRST RESULTS OF A NEW ANASTOMOSIS TECHNIQUE, ANASTOMOSE COVERED BY DIFFERENT TYPES OF MESHES

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Introduction: Anastomotic leakage in colorectal surgery is still one of the major issues of colorectal surgery and medical oncology. This major complication can be lethal or it can result in delayed adjuvant chemotherapy treatment. It is even more significant for definitive surgery after neo-adjuvant chemotherapy. In this study, we investigated a new anastomosis technique with mesh covered anastomosis in different types of meshes on preventing anastomotic leakage (1-3).

Methods: Research conducted on thirty male Wistar albino rat. The rats divided into 3 groups. First of all, an incision on the antimesenteric side of sigmoid colon performed in both groups as a single layer of anastomosis was made with 000 polypropylene suture. In group 2 and 3, polypropylene (polymesh®; Betatech Medical Co., Istanbul) and dual meshes (polymesh-dual®; Betatech Medical Co., Istanbul) adapted as long as the anastomosis and with a width of 2 cm were used to cover the anastomosis. The mesh was fixed on the anastomosis with the help of a few anastomotic sutures. All rats were sacrificed on the 10th postoperative day and the explosion pressure of the anastomosis, macroscopic and histopathological investigation (with Erlich-Hunt classification) of the anastomotic contour, and peritoneal adhesion (with Zuhlke and Linsky classifications) were compared. Group 1: Colonic Anastomosis; Group 2: Colonic anastomosis covered by polypropylene mesh; Group 3: Colonic anastomosis covered by dual mesh.

Results: The explosion pressure of Group 1 was significantly lower than Group 2 and Group 3 (p<0.05) but there was no significant difference between Group 2 and Group 3 (p>0.05). Additionally, when histopathological investigation of the anastomotic contour considered, there was a significant difference between anastomotic healing scores of Group 1 and Groups 2-3 in favor of Groups 2 and 3 (p<0.05). There was no significant difference between Group 2 and Group 3 (p>0.05). When compared with peritoneal adhesions, Group 2 showed significantly higher peritoneal adhesions against Group 1 and Group 3 (p > 0.05). There was no significant difference between Groups 1 and 3 (p > 0.05).

Conclusion: In the light of our study, we think that using dual mesh to cover the anastomosis can be considered in some selected and complicated cases to give a significant strength to anastomosis. Although the effects of anastomotic improvement is similar in both polypropylene and dual mesh groups, when the reduced peritoneal adhesion effect of dual mesh considered, we think that it can be the most reasonable alternative to use in colonic anastomoses. Further studies needed in new anastomose techniques.

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